Making Material Safety Data Sheets Available on the Corporate Intranet

Matthew D. Clark, Mirsad Hadzikadic, Ph.D., Kristen H. Gebhart

Introduction. Carolinas HealthCare System (CHS) owns, manages, leases and is affiliated with over seventeen hospitals in the southeast in addition to over seventy physicians offices. Its research facility is one of the largest and busiest in the area as evidenced by the large volume of Material Safety Data Sheets (MSDSs) requested from the Materials Management Department. Materials Management at CHS estimates that 109 MSDS requests are processed each month.

The problem facing the Materials Management Department was how to make this information widely available to all departments in a timely manner. Healthcare regulatory agencies such as OSHA [1] require an MSDS for every chemical to be stored in an easily accessible area. Violations can lead to serious accidents, fines, and/or investigations. To solve their problem they turned to the Medical Informatics Department.

While the growth of the Internet has captured everyone's attention, the Medical Informatics Department at CHS has turned its focus to the corporate intranet. Its goal is to unite employees with information. The Medical Informatics Department viewed the corporate intranet as the solution to the MSDS problem. Allowing employees access to timely information helps save time, money and sometimes lives.

Project. The project began by searching for vendors of products that could help in the organization of MSDSs. In our search we found a vendor that sells a quarterly subscription to a database of 210,000+ MSDSs. This product was developed to run on a single PC with the DOS operating system. We purchased the subscription with plans to use the database information for our Web based application.

Using the data conversion tool supplied with the application the database was ported to MS SQL Server. Development then began on the user interface and Common Gateway Interface (CGI) code using a web application development tool, Sapphire Web from Bluestone [2]. Javascript was used to validate user input and control interface features.

The first screen the user sees is the search form that uses the main window of the corporate intranet. An advanced search option is available for users who need something other than a simple search. The user is given the option of entering three fields, Part Number/Trade Name, Manufacturer, and Ingredients. After entering the values for these fields the user presses a submit button and the database is searched with the given parameters.

The results are generated by a CGI application and returned to the same window. Each section of the results displays the three fields listed earlier. The user can then click on the Part Number/Trade Name field to launch a new window with the MSDS information.

The new window is divided into three sections using the frames technology. The first section uses Javascript to create pop-up menus that allow the user to choose what section of the MSDS he/she would like to see. The second section contains some basic information about the material such as Part Number/Trade Name, Emergency Phone Number, Manufacturer and a small National Fire Rating (NFR) icon. The NFR icon is there to supply the user with important information regarding safety issues related to that material. The third section is where each of the different categories are displayed.

User input from clinical and corporate departments was used in the design of the application. Functionality and feature decisions were made as a joint venture between the development team, clinical departments, and corporate departments. Search mechanisms were refined and different fields in the database were indexed according to user needs and specifications.

Conclusion. This application has been tested in key areas of CHS and will be rolled out to the entire enterprise in four weeks. Initial response from clinical and corporate departments has very been positive. All user requests were served within minutes. The Materials Management Department is planning to reassign employees previously dealing with MSDS requests to other duties.

References.

[1]. OSHA (Occupational Safety and Health Administration). http://gabby.osha-slc.gov/ 1910.1200 - Hazard Communication. Standard Number: 1910.1200. Standard Title: Hazard Communication. SubPart Number: Z, SubPart Title: Toxic and Hazardous Substances

[2]. Bluestone Software. http://www.bluestone.com/